# Annual Fire Weather Operations Report – 2010
# National Weather Service Reno, Nevada

## 1. Meteorologists participating in the Fire Weather Program:

| | |
|---|---|
| **Fire Weather Program Leader:** | Alex Hoon (IMET Trainee) |
| **Fire Weather Program Assistants:** | Jim Wallmann (IMET), Rhett Milne (WCM), Edan Lindaman (GF) |
| **All operational Forecasters:** | MIC, WCM, SOO, 5 Senior Forecasters and 6 General Forecasters. |

The entire management team and forecast staff at WFO Reno participates in the fire weather program. All staff involved with fire weather forecast and warning operations have completed the required fire weather training.

## 2. Season Duration

**Pre-Season Overview**

Snowpack in the Sierra increased compared to the previous three years, with the main basins near normal through the 2009-2010 winter season. On April 1, snowpack totals were near 90 percent of normal. However, a cool and wet spring delayed snowmelt across the Sierra, resulting in snowpack totals rising to between 110 and 125 percent of normal by May 1, with significant high elevation snowpack still present into early June. In lower elevations, fuels which usually cure in the late spring were too moist to support sustained burning several weeks later than normal.

No large wildfires occurred during the pre-season months.

**Forecast Operations**

The 2010 fire season began May 24 with Fire Weather Forecasts issued twice per day and dedicated shift coverage 7 days a week. Due to changes in operations at WGBCC, the weather portion of the 930 am coordination call was discontinued, so WFO Reno was no longer involved with that call.

A new coordination call hosted by WFO Reno at 945 am involving local, state, and federal agencies within the Reno CWA, began on Friday July 23. This call occurred every Monday and Friday during the fire season, and expanded to additional days if Red Flag conditions were occurring or expected. WFO Reno participated in morning coordination calls with Northern California and/or Southern California GACC on an event-driven basis. After the coordinated end to the fire season on October 23, the dedicated Fire Weather shift was discontinued and the Fire Weather Forecast changed to a shortened version issued only once a day. NWS Reno continues to provide Spot Forecasts 24 hours a day, 365 days a year.

## 3. Verification Statistics and Graphs

### Red Flag Warnings

See the following tables for red flag warning and fire weather watch statistics.
*POD (Probability of Detection), FAR (False Alarm Ratio), CSI (Critical Success Index)*

**2010 – Reno Total Red Flag Statistics**

| Total Red Flag Event Days | Red Flag Warnings Issued | Verified Red Flag Warnings | Unverified Red Flag Warnings | Missed Events | Average Lead Time |
|---|---|---|---|---|---|
| 19 | 74 | 60 | 14 | 10 | 18.3 hrs |

| P.O.D. | F.A.R. | C.S.I. |
|---|---|---|
| .88 | .19 | .72 |

**2010 – Reno Relative Humidity and Wind Red Flag Statistics**

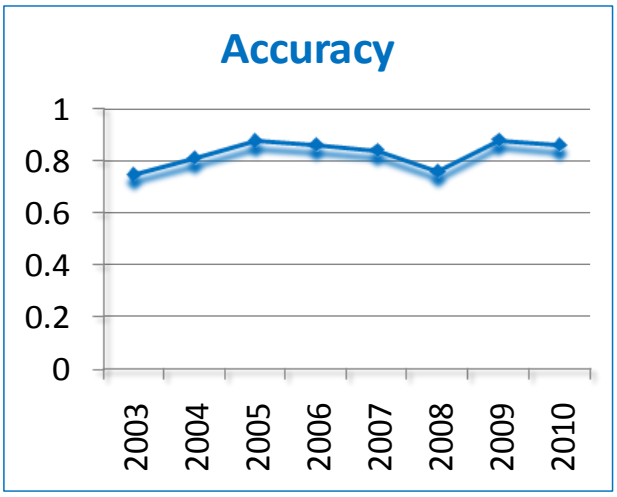
| RH and Wind Red Flag Event Days | Red Flag Warnings Issued | Verified Red Flag Warnings | Unverified Red Flag Warnings | Missed Events | Average Lead Time |
|---|---|---|---|---|---|
| 14 | 55 | 44 | 11 | 4 | 21.35 hrs |

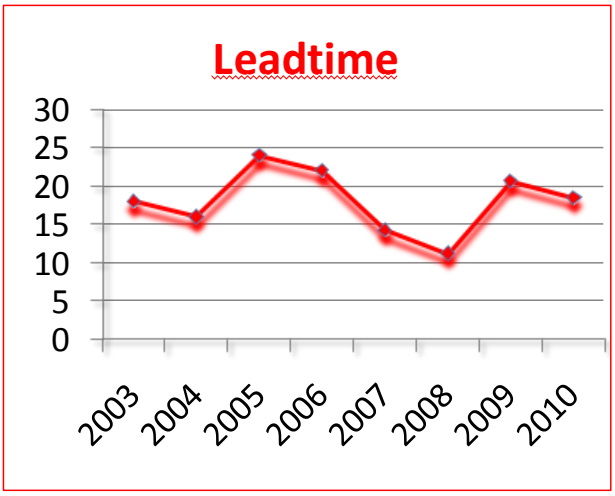
| P.O.D. | F.A.R. | C.S.I. |
|---|---|---|
| .92 | .20 | .75 |

**2010 – Reno Dry Lightning Red Flag Statistics**

| Dry Lightning Red Flag Event Days | Red Flag Warnings Issued | Verified Red Flag Warnings | Unverified Red Flag Warnings | Missed Events | Average Lead Time |
|---|---|---|---|---|---|
| 5 | 19 | 16 | 3 | 6 | 11.63 hrs |

| P.O.D. | F.A.R. | C.S.I. |
|---|---|---|
| .73 | .16 | .64 |




**2010 – Reno Fire Weather Watch Statistics**

| Watches Issued | Warnings Preceded by Watches | Verified Watches |
|---|---|---|
| 72 | 57 | 47 |

| *Dry Lightning* Watches Issued | *Dry Lightning* Warnings Preceded by Watches | *Dry Lightning* Verified Watches |
|---|---|---|
| 14 | 12 | 9 |
| *Relative Humidity and Wind* Watches Issued | *Relative Humidity and Wind* Warnings Preceded by Watches | *Relative Humidity and Wind* Verified Watches |
| 58 | 45 | 38 |

**Spot Forecasts**

WFO Reno issued 301 spot forecasts in 2010. 209 of the spots were in support of prescribed burn operations with 84 spot forecasts for wildfires. There were also 4 HAZMAT spots and 4 SAR spots. The average return time on wildfires was 27.1 minutes.

## 4. Monthly Summary of Weather and Fire Activity in the Reno Forecast Area

**May:** Several cold front passages kept temperature below normal with above normal precipitation for most of the month. Accumulating snow was reported in the Sierra as late as the 23rd, with trace amounts of snow reported in Reno on the 21st. The cool and moist conditions kept fuel moisture well above normal.

No large wildfires occurred in the month of May.

**June:** While warmer and drier conditions returned to the region, the pre-existing high fuel moisture delayed the curing of fuels over the region, and absence of significant wind or thunderstorm events kept the region free of large fire activity during the month.

No large wildfires occurred in the month of June.

**July:** Fuel moisture continued to decrease, during the middle of the month as above normal temperature and dry conditions prevailed over the region. The first Red Flag Warnings of the season were issued for the 12th and 18th, due to gusty winds and low humidity. A significant change in the weather pattern began on the 24th, as a negative tilted upper low stalled off the California coast brought unstable conditions to the region. Widespread lightning (nearly 10000 strikes), accompanied by little rainfall, affected much of the region on the 24th and 25th. Moisture increased and brought numerous wet thunderstorms on the 26th, but a nocturnal dry lightning event produced nearly 500 strikes in west central Nevada during the overnight hours of the 27th into early morning of the 28th. Red Flag Warnings were in effect during some of these thunderstorm events. After the thunderstorms ended, the final days of the month were also under Red Flag Warnings due to very dry breezy conditions during the afternoon and evening.

No large wildfires occurred in the first three weeks of July. However, fire activity increased rapidly due to multiple thunderstorm days between the 24th and 28th. Four large fires were ignited on the 24th, two more on the 25th, with one large fire start each day on the 26th, 27th, and 29th. These nine fires were contained by the end of July or very early August, with a total area burned exceeding 25,000 acres. The largest fire of the month, the “McDonald” fire, burned 9508 acres in northeast Lassen county.

**August:** The month began with dry weather and temperatures slightly above normal, before low pressure approached the southern California coast. This system first produced isolated dry thunderstorms in far northwest Nevada on the 5th and 6th. As this system moved inland, moisture increased and produced scattered to numerous thunderstorms with wetting rains on the 7th and 8th across the eastern Sierra and portions of western Nevada. Warmer and drier conditions returned for the middle of the month, with Red Flag Warnings on the 17th for gusty winds and low humidity. An unusually strong jet stream brought windy and dry conditions across the region on the 21st with another Red Flag Warning in effect, and also triggered dry thunderstorms that produced over 200 lightning strikes in Pershing County. Despite these conditions, no large fires were ignited during this event. A period of very warm weather returned from

the 24th through the 26th, and then another strong low pressure brought windy and dry conditions to the region. Red Flag warnings were in effect from the 26th through 28th. Scattered wet but fast moving thunderstorms occurred in portions of Mono, Mineral, and Churchill counties on the 26th, but no large fires were ignited. Unseasonably cool conditions with isolated to scattered showers spread across the region from the 28th through 30th, with the 29th being the coldest day of the month.

Another fire in southern Alpine county which was initially a small lightning fire ignited on July 25 grew to a large fire on August 4, before transitioning to monitor status five days later. The thunderstorms between the 5th and 8th ignited several small fires, but only one became a large fire which was quickly contained, burning less than 300 acres. Despite several dry and windy days during the second half of the month, and the dry lightning event on the 21st, no additional large fires occurred during the remainder of August.

**September:**

Warm and dry conditions continued for the first few days of the month, before a series of cold fronts brought a cooling trend between the 5th and 8th. A Red Flag Warning was in effect on the 7th when the stronger front passed through the region with gusty winds and low humidity. Windy conditions continued through the 8th, but humidity rose significantly with an area of wetting rain over northeast California and northwest Nevada. Drier and warmer conditions returned through the middle of the month. A dry cold front brought increased winds on the 19th, with a Red Flag Warning in effect for southern portions of the region. A strong area of high pressure then built over the region during the final week of the month, producing dry and very warm conditions. Many locations reported records during the final four days of the month, with highs for valley locations in the mid-upper 90s.

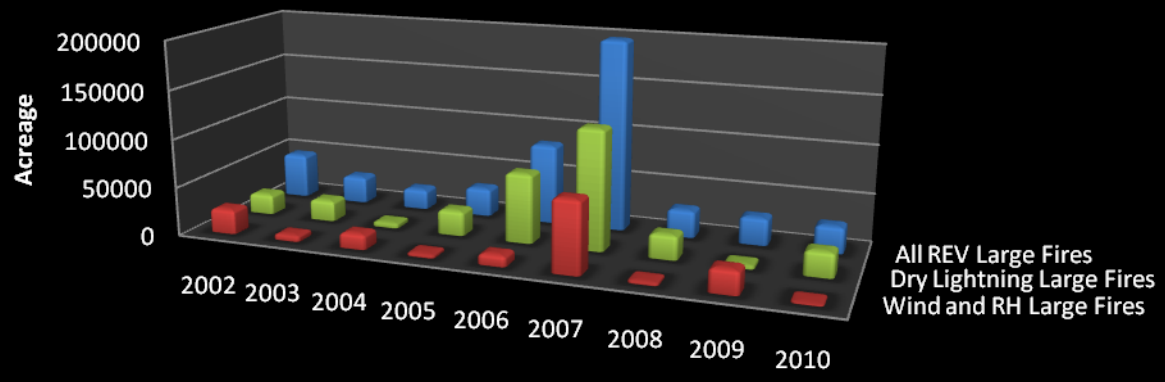
The only large wildfire during the month of September was the “Cottonwood” fire in central Pershing County, NV, during the middle of the month. In south Reno, a fire which started on the 14th burned 86 acres on the south side of Rattlesnake Mountain.

**October:**

The record heat continued into the first day of October, before a strong cold front affected the region on the 2nd producing isolated to scattered thunderstorms. After the cold front passage, a cool and moist low pressure system over southern California remained nearly stationary from the 3rd through the 6th, producing areas of rain and thunderstorms each day. Widespread wetting rains of 1 to 3 inches fell across most of the region, with high elevation snow in the Sierra. This system finally departed the Great Basin on the 7th, bringing additional wetting rains to northwest and west central Nevada. Although drier conditions followed the departure of this system, this event was the major factor which led to the agreed end of the fire season on the 23rd.

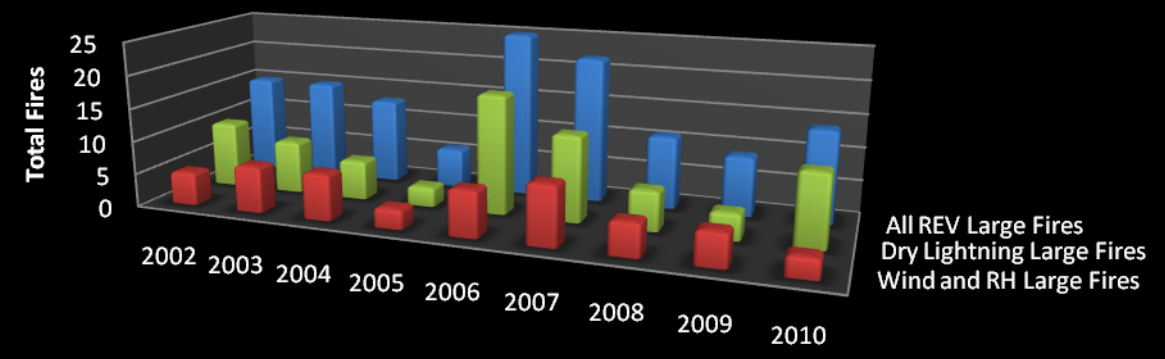
No large wildfires occurred in the month of October.

# REV Large Fire Acreage 2002-2010




| | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|
| Wind and RH Large Fires | 25480 | 6320 | 15844 | 3516 | 11322 | 73808 | 3191 | 24037 | 2037 |
| Dry Lightning Large Fires | 21210 | 21810 | 5360 | 25800 | 71594 | 123462 | 25060 | 4186 | 25308 |
| All REV Large Fires | 46690 | 28130 | 21204 | 29316 | 82916 | 197270 | 28251 | 28223 | 27345 |

# REV Total Number of Large Fires 2002-2010




| | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|
| Wind and RH Large Fires | 5 | 7 | 7 | 3 | 7 | 9 | 5 | 5 | 3 |
| Dry Lightning Large Fires | 10 | 8 | 6 | 3 | 18 | 13 | 6 | 4 | 11 |
| All REV Large Fires | 15 | 15 | 13 | 6 | 25 | 22 | 11 | 9 | 14 |

## 5. IMET Dispatches

WFO Reno has one certified IMET on station, Jim Wallmann, and one IMET trainee, Alex Hoon. Additional IMET Trainees are likely to enter the program in the 2012 season.

IMET Dispatches for Jim Wallmann:

1. Russel Complex (NW Lassen CA), July 26-28.

IMET Dispatches for Alex Hoon:

None.

IMET Dispatches from other WFO's for fires in Reno's CWA:

1. Dennis Gettman (MFR), Constantia (Near Doyle CA), July 27-30.
2. Jon Bonk (PDT), McDonald (NE Lassen CA), July 29-August 2